

***FlyBy Math™* Alignment**
Learning Results – Mathematics – July 1997

A. NUMBERS AND NUMBER SENSE

Students will understand and demonstrate a sense of what numbers mean and how they are used. Students will be able to:

3. Apply concepts of ratios, proportions, percents, and number theory (e.g., primes, factors, and multiples) in practical and other mathematical situations.	<i>FlyBy Math™</i> Activities --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
4. Represent numerical relationships in graphs, tables, and charts.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

B. COMPUTATION

Students will understand and demonstrate computation skills. Students will be able to:

2. Create, solve, and justify the solution for multi-step, real-life problems including those with ratio and proportion.	<i>FlyBy Math™</i> Activities --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
--	---

C. DATA ANALYSIS AND STATISTICS

Students will understand and apply concepts of data analysis. Students will be able to:

3. Construct inferences and convincing arguments based on data.	<i>FlyBy Math™</i> Activities --Predict outcomes and explain results of mathematical models and experiments.
---	--

E. GEOMETRY

Students will understand and apply concepts from geometry. Students will be able to:

3. Use a coordinate system to define and locate position.	<i>FlyBy Math™</i> Activities --Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes.
---	--

F. MEASUREMENT

Students will understand and demonstrate measurement skills. Students will be able to:

2. Develop and use concepts that can be measured directly or indirectly (e.g., the concept of rate).	<i>FlyBy Math™</i> Activities --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Use the distance-rate-time formula to predict and analyze aircraft conflicts.
--	--

G. PATTERNS, RELATIONS, FUNCTIONS

Students will understand that mathematics is the science of patterns, relationships, and functions. Students will be able to:

1. Describe and represent relationships with tables, graphs, and equations.	<i>FlyBy Math™</i> Activities --Use tables, graphs, and equations to solve aircraft conflict problems. --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
2. Analyze relationships to explain how a change in one quantity can result in a change in another.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates. --Interpret the slope of a line in the context of a distance-rate-time problem.
3. Use patterns and multiple representations to solve problems.	--Use tables, graphs, and equations to solve aircraft conflict problems. --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

H. ALGEBRA CONCEPTS

Students will understand and apply algebraic concepts. Students will be able to:

3. Analyze tables and graphs to identify properties and relationships in a practical context.	<i>FlyBy Math™</i> Activities --Use tables, graphs, and equations to solve aircraft conflict problems.
---	--

4. Use graphs to represent two-variable equations.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
--	---

K. MATHEMATICAL COMMUNICATION

Students will reflect upon and clarify their understanding of mathematical ideas and relationships. Students will be able to:

2. Use statistics, tables, and graphs to communicate ideas and information in convincing presentations and analyze presentations of others for bias or deceptive presentation.	<p><i>FlyBy Math™ Activities</i></p> <p>--Predict outcomes and explain results of mathematical models and experiments.</p> <p>--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p>
--	--